Meeting of the Central Valley Flood Protection Board
July 23, 2010

Staff Report – Encroachment Permit

California Department of Transportation
French Camp Slough Bridge Widening, San Joaquin County

1.0 – ITEM

Consider approval of Permit No. 18594 (Attachment B).

2.0 – APPLICANT

California Department of Transportation.

3.0 – LOCATION

The project is located in Stockton at the Interstate 5 crossing of French Camp Slough. (French Camp Slough, San Joaquin County, see Attachment C).

4.0 – DESCRIPTION

Applicant proposes to widen northbound and southbound bridges by approximately 3.7 feet, add twelve 16-inch-diameter piers to each bridge (24 total), and plant native vegetation across the channel of French Camp Slough.

5.0 – PROJECT ANALYSIS

The applicant is proposing to widen northbound and southbound bridges by approximately 3.7 feet on each side, add twelve 16-inch-diameter piers to each bridge (24 total), and plant native vegetation across the channel of French Camp Slough. New slope protection will be placed under new widening bridge on both banks and adjacent to the existing slope protection.

The proposed project is located within French Camp Slough, a regulated stream and it is a non-federal project.

5.1 – Hydraulic Analysis

The applicant plans to plant vegetation at the project site as part of the riparian restoration plan. However, the current hydraulic analysis provided by the applicant does not include the full-growth vegetation from the riparian restoration plan, and the impacts of the vegetation to the channel are unknown. Therefore, Board staff recommends denial of the proposed vegetation plantings. The applicant must submit a permit application for the vegetation plantings with a detailed planting plan and a corresponding hydraulic analysis taking into account considering a fully mature growth development of the vegetation plan (see Special Condition TWENTY-FOUR, Attachment B).

A hydraulics report was prepared by HDR for the proposed project on July 1, 2002, and revised on April 21, 2009. A hydraulic modeling analysis was performed to determine if the addition of 24 piers into the channel in addition to the existing piers would affect the 100-year water surface elevation. The results show that the proposed project will not cause any change in the 100-year water surface elevation as compared to that from the existing conditions (see Table 3, Attachment E).

The effects of backwater from the San Joaquin River are investigated in the hydraulic analysis and they are summarized in Table 4 of Attachment E. The effects will result in increase in water surface elevation for a 100-year flood event, but it will still have an excessive freeboard of approximately 5.5 feet.

The above two analyses show that the project will provide a minimum of three (3) feet freeboard for a 100-year flood event, and this complies with the California Code of Regulations, Title 23 Waters, Section 128(a)(10)(A).

The hydraulic report dated July 1, 2002 showed that there is a potential scour of 6 feet due to pier scour and contraction scour. The report was then revised on April 21, 2009 and the scour analysis showed that there is a potential scour of 3 feet due to local scour at the piers (see Table 6, Attachment F). The revised report states that the contraction scour was found to be negligible due to all flow for the 100-year flood event being contained within the channel upstream of and at the bridge crossings themselves (see the texts under Scour Results in Attachment F). The revision was also performed in response to the memorandum provided by the California Department of Transportation

(Caltrans) stating that there is no indication of local scour issues or channel degradation based on their historic structure maintenance records and channel cross-sections (see Attachment G). As indicated in the memorandum, Caltrans suggested that armoring around the piers is unnecessary due to the deep design pile tip elevations, and the armoring is not included in this proposed project. Board staff suggests that the channel bottom shall be monitored regularly. Any voids in the channel bottom resulting from scour must be restored to original conditions and any sediment accumulated in the channel resulting from the scour shall be removed to maintain the original channel capacity (see Special Condition FORTY-EIGHT, Attachment B).

5.2 – Geotechnical Analysis

A foundation report was prepared by Kleinfelder for the proposed project dated March 15, 2007. In the report, estimated pile tip elevations are recommended for the proposed project. The design pile tip elevations indicated in the final foundation plan dated July 7, 2010 are similar to those recommended in the foundation report.

In the event of maximum possible scour (either 3 or 6 feet), the design consultant, HDR stated that the structural stability of the piers will not be at risk. This is because the maximum possible scour was accounted for in the design of the piers by making the required embedment depth of the piers deeper to account for the scour. The top 15 feet of pile embedment was ignored when designing for axial capacity of the piers (see the explanations by HDR as shown in Appendix H).

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- The U.S. Army Corps of Engineers (USACE) 208.10 comment letter dated May 21, 2010 has been received and is attached to draft Permit 18594 (Attachment B) as Exhibit A. USACE has no objection to the project and commented that the project does not affect the ability of the channel to pass 2,000 cubic feet per second (cfs). The discharge of 3,970 cfs was used in the hydraulic model analysis performed by HDR. The value exceeds 2,000 cfs and the requirement is met.
- The San Joaquin County Flood Control & Water Conservation District (District) endorsement letter dated October 13, 2009 has been received and is attached to

draft Permit 18593 (Attachment B) as Exhibit B. The District has no objection and endorses the project with conditions stated in the letter.

7.0 – PROPOSED CEQA FINDINGS

Board staff has prepared CEQA findings (see Attachment D) for this project. Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

   The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

   The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

   This project has no negative impacts to the State Plan of Flood Control because the addition of the new piers will not cause increase in the 100-year water surface elevation as compared to that under the existing conditions.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

   The project will still have a freeboard of more than 3 feet if the effects of backwater from the San Joaquin River are taken into account. The water surface elevation change resulted from change in climate for the site is unknown. However, because of the excessive amount of freeboard in the channel at this location, the potential

water surface raise will be within the freeboard. There are no other foreseeable projected future events that would impact this project.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board adopt the CEQA findings, direct staff to file a Notice of Determination with the State Clearinghouse, and approve Permit No. 18594 with the exception of the vegetation plantings.

10.0 – LIST OF ATTACHMENTS

A. Resolution (No applicable, not included)
B. Draft Permit
C. Location Maps and Photos
D. CEQA Findings
E. Summary of Hydraulic Analysis Related to Project and Backwater Effects
F. Summary of Hydraulic Analysis Related to Scour
G. Memorandum Sent by Caltrans dated November 7, 2006
H. E-mail Sent by Design Consultant, HDR dated July 8, 2010

Report Completed by:	Joo Chai Wong
Design Review:	Joo Chai Wong
Environmental Review:	Andrea Mauro
Document Review:	Ali Porbaha and Len Marino

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18594 BD

This Permit is issued to:

California Department of Transportation
22 E Weber Avenue, Room 301
Stockton, California 95202

To widen north and southbound bridges by approximately 3.7 feet and add twelve 16-inch-diameter piers to each bridge (24 total) across the channel of French Camp Slough. The project is located in Stockton at the Interstate 5 crossing of French Camp Slough (Section 11, T1N, R6E, MDB&M, San Joaquin County Flood Control and Water Conservation District, French Camp Slough, San Joaquin County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

_____
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18594 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources, San Joaquin County Flood Control and Water Conservation District or any other agency responsible for maintenance.

FIFTEEN: The permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

SIXTEEN: The permittee shall provide supervision and inspection services acceptable to the Central Valley Flood Protection Board. A professional engineer registered in the State of California shall certify that all work was inspected and performed in accordance with submitted drawings, specifications, and permit conditions.

SEVENTEEN: The Central Valley Flood Protection Board and Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

EIGHTEEN: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central

Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

NINETEEN: The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

TWENTY: The permittee shall be responsible for repair of any damages to French Camp Slough and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY-ONE: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend and hold harmless the State of California, or any departments thereof, from any liability or claims of liability associated therewith.

TWENTY-TWO: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

TWENTY-THREE: No construction work of any kind, including clearing and grubbing, shall be done during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-FOUR: There shall be no plantings within and near the project area under this permit, except that of native grasses that will be required for slope protection of the fill placement. The applicant must submit an application for a proposed revegetation plan to include a detailed planting plan and a corresponding hydraulic analysis.

TWENTY-FIVE: All cleared trees and brush shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to April 15.

TWENTY-SIX: The new bridge sections shall have at least the same waterway area and vertical clearance as the existing bridge sections.

TWENTY-SEVEN: The soffit of the new bridge sections shall be no lower than that of the existing bridge sections.

TWENTY-EIGHT: Bridge piers and bents placed within the floodway to support a widened portion of an existing bridge shall be constructed in line with the existing bents and piers.

TWENTY-NINE: Prior to construction the permittee shall install an X, Y, Z axis based coordinate monitoring system to monitor French Camp Slough before, during and after all pile driving activities.

THIRTY: Revetment shall be uniformly placed and properly transitioned into the bank, or adjacent revetment and in a manner which avoids segregation.

THIRTY-ONE: Revetment shall be quarry stone and shall meet the following grading:

Quarry Stone

Stone Size	Percent Passing
15 inches;	100
8 inches;	80-95
6 inches;	45-80
4 inches;	15-45
2 inches;	0-15

THIRTY-TWO: Quarry rock shall be used on slopes steeper than 3 horizontal to 1 vertical.

THIRTY-THREE: The revetment shall not contain any reinforcing steel, floatable, or objectionable material. Asphalt or other petroleum-based products may not be used as fill or erosion protection on the levee section or within the floodway.

THIRTY-FOUR: The recommended minimum thickness of revetment, measured perpendicular to the bank or levee slope, is 18 inches below the usual water surface and 12 inches above the usual water surface.

THIRTY-FIVE: Temporary staging, formwork, stockpiled material, equipment, gravel work pads, work testles, scaffolding, temporary buildings, and other appurtenances shall not remain in the floodway during the flood season from November 1 to April 15.

THIRTY-SIX: The temporary trestle piling shall be completely removed and voids grouted or removed to at least 1 foot below the natural ground line and at least 3 feet below the bottom of the low-water channel.

THIRTY-SEVEN: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside French Camp Slough to maintain the design flow capacity and flowage area.

THIRTY-EIGHT: All fencing, gates and signs removed during construction of this project shall be replaced in kind and at the original locations. If it is necessary to relocate any fence, gate or sign, the permittee is required to obtain written approval from the Central Valley Flood Protection Board prior to installation at a new location.

THIRTY-NINE: All temporary fencing, gates and signs shall be removed upon completion of the project.

FORTY: Backfill material for excavations within the channel including river bank and channel bottom shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

FORTY-ONE: Density tests by a certified materials laboratory will be required to verify compaction of backfill for the project.

FORTY-TWO: The stability of the channel bank shall be maintained at all times during construction.

FORTY-THREE: The permittee shall be responsible for all damages due to settlement, consolidation, or heave from any construction-induced activities.

FORTY-FOUR: In the event the existing revetment is disturbed or displaced, it shall be restored to its original condition upon completion of the proposed installation.

FORTY-FIVE: All debris generated by this project shall be disposed of outside the floodway and project site.

FORTY-SIX: Debris that may accumulate on the permitted encroachment(s) shall be cleared off and disposed of outside the floodway and French Camp Slough after each period of high water.

FORTY-SEVEN: The project site shall be restored to the condition that existed prior to start of work.

FORTY-EIGHT: The channel bottom shall be monitered regularly. Any voids in the channel bottom resulting from scour or erosion must be restored to original conditions with suitable materials. Any sediments accumulated in the channel from the scour or erosion shall be removed to maintain the original channel capacity.

FORTY-NINE: If the permitted result(s) in an adverse hydraulic impact, the permittee shall provide appropriate mitigation measures, to be approved by the Central Valley Flood Protection Board, prior to implementation of mitigation measures.

FIFTY: Upon completion of the project, the permittee shall submit as-built drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite LL30, Sacramento, California 95821.

FIFTY-ONE: The letter from the Department of the Army dated May 21, 2010, which is attached to this permit as Exhibit A is in reference to this project.

FIFTY-TWO: The permittee shall comply with the conditions set forth in the letter from the San Joaquin County Flood Control and Water Conservation District dated October 13, 2009, which is attached to this permit as Exhibit B and is incorporated by reference.

DEPARTMENT OF THE ARMY
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

REPLY TO
ATTENTION OF

May 21, 2010

Flood Protection and Navigation Section (18594)

Mr. Jay Punia, Executive Officer
Central Valley Flood Protection Board
3310 El Camino Ave. Rm. LL40
Sacramento, California 95821

Dear Mr. Punia:

We have reviewed a permit application by the City of Stockton Department of Public Works (application number 18594). This project includes widening the existing Interstate 5 bridge over French Camp Slough. The project also includes installing 24-16 inch diameter piers in French Camp Slough. The proposed work is located in Stockton, just south of Carolyn Weston Boulevard and Interstate 5 at 37.9074°N 121.2876°W NAD83, San Joaquin County, California.

The proposed work does not affect a Federally constructed project, however, there are Federal projects just upstream and downstream from the proposed work. According to the Littlejohn Creek Channels Operation and Maintenance manual and the Lower San Joaquin River and Tributaries Project, California Unit No. 1 Operation and Maintenance manual, the channel is designed for 2,000 cubic feet per second (cfs) upstream and downstream from the proposed work. The sponsor shall to ensure that the proposed work does not affect the ability of the channel to pass 2,000 cfs.

A file (200901303) has been opened because a Section 10 and/or Section 404 permit may be required. Please advise the applicant to contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Division, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250.

A copy of this letter is being furnished to the acting chief, Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite LL30, Sacramento, CA 95821.

Sincerely,

Meegan G. Nagy, P.E.
Chief, Flood Protection and Navigation Section

SAN JOAQUIN COUNTY
FLOOD CONTROL & WATER CONSERVATION DISTRICT
P. O. BOX 1810
1810 EAST HAZELTON AVENUE
STOCKTON, CALIFORNIA 95201
TELEPHONE (209) 468-3000
FAX NO. (209) 468-2999

THOMAS R. FLINN
DIRECTOR OF PUBLIC WORKS
FLOOD CONTROL ENGINEER

October 13, 2009

The Central Valley Flood Protection Board
3310 El Camino Avenue
Sacramento, California 95821

Attention: Mr. Jon Yego, Chief
Floodway Protection Section

SUBJECT: CENTRAL VALLEY FLOOD PROTECTION BOARD
PERMIT APPLICATION FOR THE CITY OF STOCKTON,
AT THE INTERSTATE 5 CROSSING OF THE FRENCH CAMP SLOUGH

Gentlemen:

Reference is made to the Central Valley Flood Protection Board Permit Application to widen the Interstate 5 northbound and southbound bridges over French Camp Slough. The California Department of Transportation (Caltrans) and the City of Stockton propose the bridge widening, which will add one auxiliary lane in each direction. Twenty-four precast piles with a diameter of 0.38-meters (15-inches) will be driven into the channel for each bridge. Wingwalls and abutments will be extended above the 100-year flood level and rock slope protection will be placed on slopes of the slough.

The project is located at the Interstate 5 crossing of French Camp Slough in San Joaquin County, in Section 11, Township 1 North, Range 6 East, Mount Diablo Base and Meridian.

The San Joaquin County Flood Control and Water Conservation District (District) has reviewed the Central Valley Flood Protection Board Permit Application of the California Department of Transportation and the City of Stockton and endorses the project subject to the following conditions:

STANDARD CONDITIONS

1. The District shall not be responsible for the maintenance of the facilities specified in this application.
2. The Permittee shall be responsible for any damage to French Camp Slough that may occur as a result of this project.
3. The project shall be constructed in accordance with the preliminary plans dated November 11, 2008 submitted with the application dated September 8, 2009. Any revisions to the project will require the submittal of the revised plans to the District for review and approval.
4. No work shall be allowed in French Camp Slough channel between November 1st and April 15th.
5. The Permittee shall keep French Camp Slough free and clear of all obstacles that prevent or retard flow of water.

SPECIAL CONDITIONS

6. Bank and channel stabilization material (rip-rap) shall be placed in a manner such that no reduction in channel cross-section will result.

7. Upon completion of the project, the Permittee shall submit as-built drawings in PDF format to:

   San Joaquin County Flood Control and Water Conservation District
   P.O. Box 1810
   1810 E Hazelton Avenue
   Stockton, CA 95201

If there are any questions regarding these comments, please contact me at (209) 953-7617.

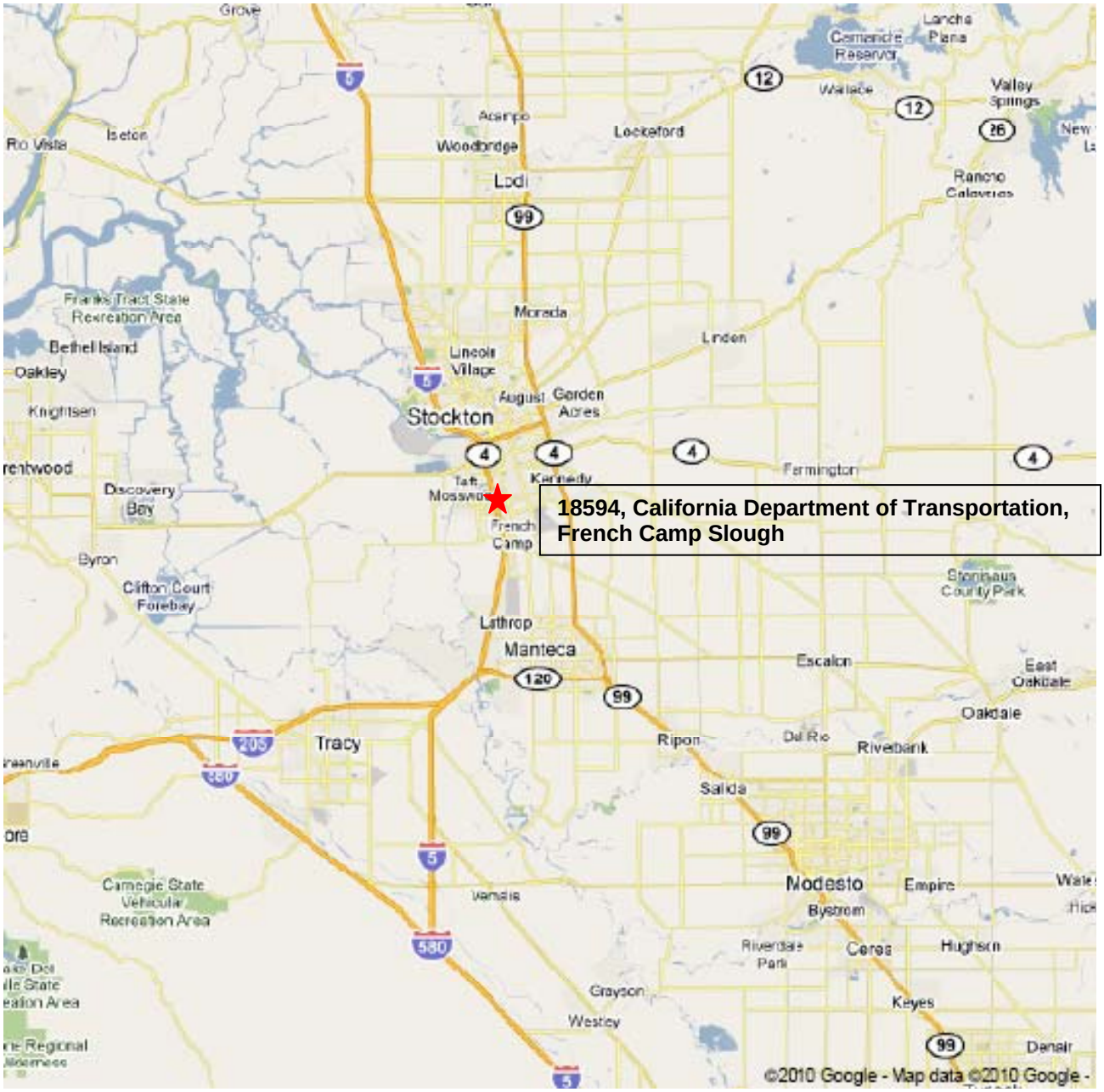
Sincerely,

Mark W. Connelly

MARK W. CONNELLY
Engineering Services Manager

MWC:JC:mk
FM-9J014-M1

Vicinity Map



Source: Google Maps

Project Location Map

Source: Google Earth

Sheet 5: Site Photographs

Photo 1. View of southbound I-5 over French Camp Slough, taken from under northbound I-5.

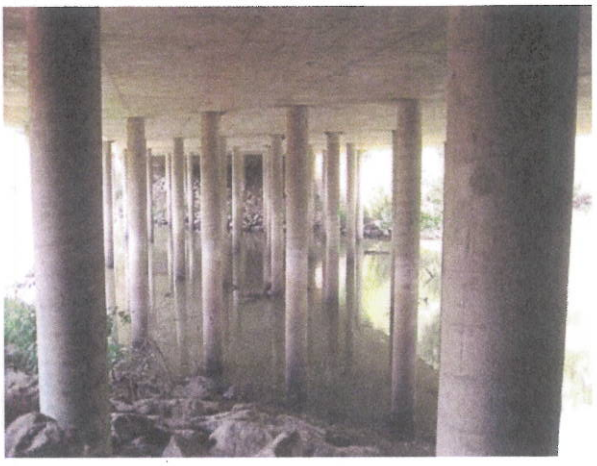


Photo 2. View of the underside of northbound I-5 over French Camp Slough.

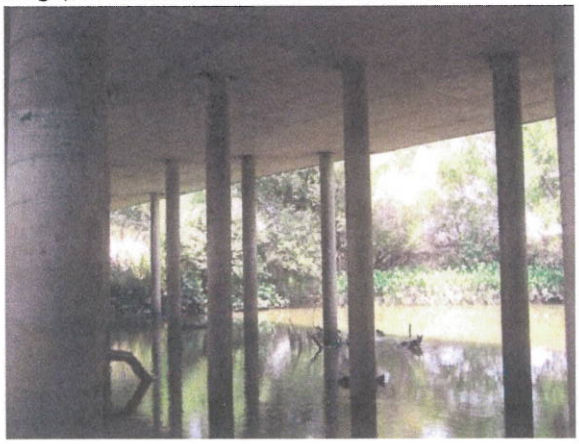


Photo 3. View of the underside of northbound I-5 and French Camp Slough.

Photo 4. View of northbound I-5 before French Camp Slough.

Photo 5. View of northbound I-5 at French Camp Slough.

Photo 6. View of southbound I-5 at French Camp Slough, photo taken from west to east.

Source: Provided by the applicant

7.0 – PROPOSED CEQA FINDINGS

Board staff has prepared the following CEQA Findings:

The Board, acting as a responsible agency under CEQA, has independently reviewed the Draft Environmental Impact Report/Environmental Assessment (DEIR, March 2006), Final Environmental Impact Report/Environmental Assessment (FEIR, November 2006), and Stockton City Council Resolution 07/02-62 (adopted June 26, 2007), (which includes a Statement of Facts, Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Program) for the Interstate 5/French Camp Road Interchange and Sperry Road Extension Project (SCH No. 2003112018) prepared by the lead agency, the City of Stockton. These documents, including project design and City resolution, may be viewed or downloaded from the Central Valley Flood Protection Board website at http://www.cvfpb.ca.gov/meetings/2010/7-22-23-2010agenda.cfm under a link for this agenda item.

7.1 – Impacts that can be Mitigated

The following are the significant impacts and the mitigation measures to reduce them to less than significant:

- Aesthetics and Visual Resources: The project proponent will prepare and implement a restoration plan in accordance with County and City tree ordinance requirements to mitigation for the permanent visual impact of vegetation removal.

- Biological Resources: Prior to construction, conduct a biological resources education program for construction crews and enforce construction restrictions. The project proponent will prepare and implement a restoration plan in accordance with County and City tree ordinance requirements to mitigation for the loss of Great Valley Oak Riparian Forest habitat. The contractor would minimize the spread of noxious weeds by educating construction staff on identification and removal, using weed-free materials, and washing equipment. Pre-construction surveys will be completed for Swainson's hawk, western pond turtle, giant garter snake, riparian brush rabbit, riparian woodrat, bank swallow, and western burrowing owl.

- Community Resources: The project proponent will implement traffic control measures to reduce disruption of traffic pattern during construction activities.

- Hydrology and Water Quality: Implement construction-related and permanent post-construction Best Management Practices, including erosion control. A Storm Water Pollution Prevention Plan (SWPPP) will be implemented, as appropriate, to retain, treat, and dispose of surface water and groundwater. Additionally, the project proponent will develop and implement a spill prevention and control program.

- Noise: The project proponent will employ noise-reduction design features in the design of the proposed project. Implement equipment noise reduction measures and move portable equipment as far from noise-sensitive locations, as feasible.

- Transportation and Traffic: The project proponent will prepare and implement a traffic management plan that would identify the location of temporary detours and signage to facilitate local traffic patterns and through-traffic requirements. Emergency service providers would be contacted with adequate advanced notice of street closures and detours. Businesses would be contacted and advised concerning construction activities.

Based on its independent review of the DEIR, FEIR, and the City of Stockton Resolution 07/02-62, the Board finds that for each of the significant impacts described above, changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR. Moreover, such changes or alterations are within the responsibility and jurisdiction of another public agency, the City of Stockton, and such changes have been adopted by that agency.

The documents and other materials which constitute the record of the Central Valley Flood Board's proceedings in this matter are in the custody of Jay Punia, Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Rm. 151, Sacramento, California 95821.

Table 3: I-5 Bridge Widening Results

Bridge	D/S Station (RM)	Elevation of Bridge (ft, NGVD)		100-yr U/S WSEL (ft, NGVD)		Freeboard (ft)
		Low Chord	High Chord	Existing	Proposed	
I-5 Southbound	2.35	18.0	19.5	9.59	9.59	8.41
I-5 Northbound	2.38	18.0	19.5	9.69	9.69	8.31

Note: Elevations presented in Table 3 do not include San Joaquin River backwater effects

Table 4 displays the 100-year and 50-year water surface elevations for proposed conditions at the I-5 bridge structures and the associated freeboards. These elevations include backwater effects as they are more conservative values and more appropriate for freeboard calculations.

Table 4: I-5 Bridge Widening Freeboard

Bridge	D/S Station (RM)	Elevation of Bridge (ft, NGVD)		Proposed U/S WSEL (ft, NGVD)		Freeboard (ft)	
		Low Chord	High Chord	50-year	100-year	50-year	100-year
I-5 Southbound	2.35	18.0	19.5	11.14	12.46	6.86	5.54
I-5 Northbound	2.38	18.0	19.5	11.16	12.51	6.84	5.49

Note: Elevations presented in Table 4 include San Joaquin River backwater effects

Table 5 displays HEC-RAS WSEL results for the 50-year and 100-year events with and without San Joaquin River backwater effects for the cross sections within the vicinity of the I-5 bridge crossings.

Scour Results

Scour was evaluated as a portion of the hydraulic evaluation of the proposed I-5 widening project.

Water surface elevations were not high enough to cause scour to the abutments nor did they reach the left and right overbank areas (See Figure 3), therefore they were not evaluated for scour. Local scour at the piers was estimated to be approximately 3.0 ft. Contraction scour was found to be negligible due to all flow for the 100-year event being contained within the channel upstream of and at the bridge crossings themselves. Combined scour for the worse case condition is 3.0 ft. See Table 6 for complete scour results.

Table 6: Scour Results

	Equation	Southbound (RM 2.38)	Northbound (RM 2.35)
Contraction	Livebed Equation	0.0 ft	0.0 ft
Pier	CSU	3.0 ft	3.0 ft
Total		**3.0 ft**	**3.0 ft**

Pile tip elevations are expected to be approximately 40 to 45 feet below the minimum channel depth. In the event of maximum scour occurring, a scour depth of 3.0 ft is not expected to have any significant effect on the structural integrity of the I-5 bridge crossings. Appendix C includes summary tables of scour calculation inputs and results.

Summary of Findings

Model results indicate that there is no change between the existing and proposed conditions to the water surface elevations from the widening of the I-5 bridge decks. This result is expected since the modeling input values from the widening of the bridge do not change the pier modeling parameters, as long as the additional columns are in parallel to the existing column alignments and the proposed columns are of the same diameter as the existing columns. The water surface elevation is not high enough to impact the bridge abutments thus scour in this region is negligible. Per FEMA requirements, the proposed work does not cause additional flooding nor increase water velocities to a point of causing detrimental effects.

The scour analysis estimated 3.0 feet of potential local pier scour with a 3 ft/s maximum velocity at the center of the channel. See Figure 4 for horizontal velocity distribution.

The change in the abutments is not expected to affect scour since proposed bridge abutment location is the same as the existing condition, which is outside of the floodplain.

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation, and Housing Agency

M e m o r a n d u m

To: John Fujimoto
Liaison Engineer
Office of Special Funded Projects
Division of Engineering Services

Date: November 7, 2006

File: 10-SJ-5-35.6
10-0E4901
Br. No. 29-0221 R/L

From: Rick R. Macala, P.E.
Hydraulic/Hydrology Engineer
Structures Hydraulics and Hydrology
Office of Design and Technical Services
Division of Engineering Services

Subject: Review of Hydraulic Report for French Camp Slough
French Camp Slough Bridge (widen), Br. No. 29-0221 R/L

This memorandum is in response to the Office of Special Funded Projects' request for a hydraulic report review of HDR Engineering's hydraulic report titled, "French Camp Slough Hydraulics at the Proposed I-5 Bridge Widening". This project consists of two separate bridge decks to be widened by approximately 12.4 feet to the west for the southbound lane and 12.4 feet to the east for the northbound lane.

A review of the hydraulic and hydrologic parameters used in the above mentioned report are acceptable as presented. If any modifications are made beyond the scope of the Location Hydraulic Study, Caltrans must be informed.

After reviewing historic structure maintenance records and channel cross-sections, there is no indication of local scour issues or channel degradation to the existing project site conditions. In addition, this site has been rated as not scour critical. According to the HDR hydraulic report, a scour analysis was performed with a potential scour of 6.0 feet including both local pier scour and contraction scour. This report suggests channel armoring around the piers to protect against the scour potential. This office feels that, although channel armoring around the piers is in certain circumstances an acceptable scour countermeasure, it is unnecessary due to the existing design of the pile tip elevations. The foundation of the substructure

should be designed at a depth that the structural stability will not be at risk with maximum scour. However, the channel armoring design feature will be left to the District's discretion. In addition, banks and channel inverts should be restored to match existing conditions.

If there are any questions please contact Rick Macala at 227-9369 or STEVE NG at 227-8018.

Wong, Joo Chai

From: Maniscalco, John [John.Maniscalco@hdrinc.com]
Sent: Thursday, July 08, 2010 9:21 AM
To: Wong, Joo Chai
Cc: John Fujimoto; Keng, Titus
Subject: RE: 10-0E4901, French Camp; Central Valley Flood Protection Permit

Joo –

In response to your comment a) below the scour has been accounted for in the design of the bridge supports by making the required embedment length of the pile deeper to account for the scour. This is standard practice for bridge engineers to deduct the scour depth from the required embedment length and to also look at reinforcing the column for the longer column length between the maximum scour depth and the soffit of bridge.

In response to comment b), on Page 10 of the foundation report, "top 4.5 meters (15 feet) of pile embedment is to be ignored when designing for axial capacity of piles". Based on this the 6 feet scour has been accounted for in the design and the piles have been designed for 15 feet of scour therefore no scour contour measures are required at the columns.

Let me know if you have any additional questions.

Thank you.

John Maniscalco, PE, SE
Project Manager
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From: Wong, Joo Chai [mailto:jwong@water.ca.gov]
Sent: Thursday, July 08, 2010 8:34 AM
To: Maniscalco, John
Cc: John Fujimoto
Subject: RE: 10-0E4901, French Camp; Central Valley Flood Protection Permit

Dear Mr. Maniscalco,

Since armoring around the piers will not be installed, there will be a potential 6-ft scour at the piers if the site is hit by a 100-year flood event. Caltrans indicates that there is no indication of local scour issues at the site based on historic structure maintenance records. My comments and questions are:

a) What are the mitigation measures if considerable scours occur?
b) If a 6-ft scour happens, there will be a 6-ft reduction in skin friction between the pile and the adjacent soil, thus decreasing pile capacity. What is your comment about this?

Your feedback to the questions would be greatly appreciated.

Joo Chai Wong